



SEQUENCE LISTING

<110> BEAUDOIN, Adrien R.
SÉVIGNY, Jean
BACH, Fritz H.
ROBSON, Simon

<120> ATP-DIPHOSPHOHYDROLASES, PROCESS OF PURIFICATION
THEREOF AND PROCESS OF PRODUCING THEREOF BY RECOMBINANT
TECHNOLOGY

<130> 920333.90019

<140> 09/781,796

<141> 2001-02-12

<150> 08/419,204

<151> 1995-04-10

<150> CA96/00223

<151> 1996-04-10

<150> 08/930,921

<151> 1998-02-01

<160> 8

<170> PatentIn Ver. 2.1

<210> 1

<211> 510

<212> PRT

<213> Homo sapiens

<400> 1
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1 5 10 15

Ile Leu Ala Ile Leu Gly Phe Ser Ser Ile Ile Ala Val Ile Ala Leu
20 25 30

Leu Ala Val Gly Leu Thr Gln Asn Lys Ala Leu Pro Glu Asn Val Lys
35 40 45

Tyr Gly Ile Val Leu Asp Ala Gly Ser Ser His Thr Ser Leu Tyr Ile
50 55 60

Tyr Lys Trp Pro Ala Glu Lys Glu Asn Asp Thr Gly Val Val His Gln
65 70 75 80

Val Glu Glu Cys Arg Val Lys Gly Pro Gly Ile Ser Lys Phe Val Gln
85 90 95

Lys Val Asn Glu Ile Gly Ile Tyr Leu Thr Asp Cys Met Glu Arg Ala

100	105	110
Arg Glu Val Ile Pro Arg Ser Gln His Gln Glu Thr Pro Val Tyr Leu		
115	120	125
Gly Ala Thr Ala Gly Met Arg Leu Leu Arg Met Glu Ser Glu Glu Leu		
130	135	140
Ala Asp Arg Val Leu Asp Val Val Glu Arg Ser Leu Ser Asn Tyr Pro		
145	150	155
Phe Asp Phe Gln Gly Ala Arg Ile Ile Thr Gly Gln Glu Glu Gly Ala		
	165	170
Tyr Gly Trp Ile Thr Ile Asn Tyr Leu Leu Gly Lys Phe Ser Gln Lys		
	180	185
Thr Arg Trp Phe Ser Ile Val Pro Tyr Glu Thr Asn Asn Gln Glu Thr		
	195	200
Phe Gly Ala Leu Asp Leu Gly Gly Ala Ser Thr Gln Val Thr Phe Val		
	210	215
Pro Gln Asn Gln Thr Ile Glu Ser Pro Asp Asn Ala Leu Gln Phe Arg		
	225	230
Leu Tyr Gly Lys Asp Tyr Asn Val Tyr Thr His Ser Phe Leu Cys Tyr		
	245	250
Gly Lys Asp Gln Ala Leu Trp Gln Lys Leu Ala Lys Asp Ile Gln Val		
	260	265
Ala Ser Asn Glu Ile Leu Arg Asp Pro Cys Phe His Pro Gly Tyr Lys		
	275	280
Lys Val Val Asn Val Ser Asp Leu Tyr Lys Thr Pro Cys Thr Lys Arg		
	290	295
Phe Glu Met Thr Leu Pro Phe Gln Gln Phe Glu Ile Gln Gly Ile Gly		
	305	310
Asn Tyr Gln Gln Cys His Gln Ser Ile Leu Glu Leu Phe Asn Thr Ser		
	325	330
Tyr Cys Pro Tyr Ser Gln Cys Ala Phe Asn Gly Ile Phe Leu Pro Pro		
	340	345
Leu Gln Gly Asp Phe Gly Ala Phe Ser Ala Phe Tyr Phe Val Met Lys		
	355	360
Phe Leu Asn Leu Thr Ser Glu Lys Val Ser Gln Glu Lys Val Thr Glu		
	370	375
Met Met Lys Lys Phe Cys Ala Gln Pro Trp Glu Glu Ile Lys Thr Ser		

385 390 395 400
 Tyr Ala Gly Val Lys Glu Lys Tyr Leu Ser Glu Tyr Cys Phe Ser Gly
 405 410 415
 Thr Tyr Ile Leu Ser Leu Leu Leu Gln Gly Tyr His Phe Thr Ala Asp
 420 425 430
 Ser Trp Glu His Ile His Phe Ile Gly Lys Ile Gln Gly Ser Asp Ala
 435 440 445
 Gly Trp Thr Leu Gly Tyr Met Leu Asn Leu Thr Asn Met Ile Pro Ala
 450 455 460
 Glu Gln Pro Leu Ser Thr Pro Leu Ser His Ser Thr Tyr Val Phe Leu
 465 470 475 480
 Met Val Leu Phe Ser Leu Val Leu Phe Thr Val Ala Ile Ile Gly Leu
 485 490 495
 Leu Ile Phe His Lys Pro Ser Tyr Phe Trp Lys Asp Met Val
 500 505 510

<210> 2
 <211> 1818
 <212> PRT
 <213> Homo sapiens

<400> 2
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 Gly Cys Thr Gly Gly Gly Gly Gly Gly Gly Gly Ala Ala Ala Gly
 20 25 30
 Ala Cys Gly Ala Gly Gly Ala Ala Ala Gly Ala Gly Gly Ala Gly Gly
 35 40 45
 Ala Ala Ala Ala Cys Ala Ala Ala Ala Gly Cys Thr Gly Cys Thr Ala
 50 55 60
 Cys Thr Thr Ala Thr Gly Gly Ala Ala Gly Ala Thr Ala Cys Ala Ala
 65 70 75 80
 Ala Gly Gly Ala Gly Thr Cys Thr Ala Ala Cys Gly Thr Gly Ala Ala
 85 90 95
 Gly Ala Cys Ala Thr Thr Thr Thr Gly Cys Thr Cys Cys Ala Ala Gly
 100 105 110
 Ala Ala Thr Ala Thr Cys Cys Thr Ala Gly Cys Cys Ala Thr Cys Cys
 115 120 125

Thr Thr Gly Gly Cys Thr Thr Cys Thr Cys Cys Thr Cys Thr Ala Thr
 130 135 140
 Cys Ala Thr Ala Gly Cys Thr Gly Thr Gly Ala Thr Ala Gly Cys Thr
 145 150 155 160
 Thr Thr Gly Cys Thr Thr Gly Cys Thr Gly Thr Gly Gly Gly Thr
 165 170 175
 Thr Gly Ala Cys Cys Cys Ala Gly Ala Ala Cys Ala Ala Ala Gly Cys
 180 185 190
 Ala Thr Thr Gly Cys Cys Ala Gly Ala Ala Ala Cys Gly Thr Thr
 195 200 205
 Ala Ala Gly Thr Ala Thr Gly Gly Gly Ala Thr Thr Gly Thr Gly Cys
 210 215 220
 Thr Gly Gly Ala Thr Gly Cys Gly Gly Gly Thr Thr Cys Thr Thr Cys
 225 230 235 240
 Thr Cys Ala Cys Ala Cys Ala Ala Gly Thr Thr Thr Ala Thr Ala Cys
 245 250 255
 Ala Thr Cys Thr Ala Thr Ala Ala Gly Thr Gly Gly Cys Cys Ala Gly
 260 265 270
 Cys Ala Gly Ala Ala Ala Ala Gly Gly Ala Gly Ala Ala Thr Gly Ala
 275 280 285
 Cys Ala Cys Ala Gly Gly Cys Gly Thr Gly Gly Thr Gly Cys Ala Thr
 290 295 300
 Cys Ala Ala Gly Thr Ala Gly Ala Ala Gly Ala Ala Thr Gly Cys Ala
 305 310 315 320
 Gly Gly Gly Thr Thr Ala Ala Ala Gly Gly Thr Cys Cys Thr Gly Gly
 325 330 335
 Ala Ala Thr Cys Thr Cys Ala Ala Ala Ala Thr Thr Thr Gly Thr Thr
 340 345 350
 Cys Ala Gly Ala Ala Ala Gly Thr Ala Ala Ala Thr Gly Ala Ala Ala
 355 360 365
 Thr Ala Gly Gly Cys Ala Thr Thr Thr Ala Cys Cys Thr Gly Ala Cys
 370 375 380
 Thr Gly Ala Thr Thr Gly Cys Ala Thr Gly Gly Ala Ala Ala Gly Ala
 385 390 395 400
 Gly Cys Thr Ala Gly Gly Gly Ala Ala Gly Thr Gly Ala Thr Thr Cys
 405 410 415

Cys Ala Ala Gly Gly Thr Cys Cys Cys Ala Gly Cys Ala Cys Cys Ala
 420 425 430
 Ala Gly Ala Gly Ala Cys Ala Cys Cys Cys Gly Thr Thr Thr Ala Cys
 435 440 445
 Cys Thr Gly Gly Gly Ala Gly Cys Cys Ala Cys Gly Gly Cys Ala Gly
 450 455 460
 Gly Cys Ala Thr Gly Cys Gly Gly Thr Thr Gly Cys Thr Cys Ala Gly
 465 470 475 480
 Gly Ala Thr Gly Gly Ala Ala Ala Gly Thr Gly Ala Ala Gly Ala Gly
 485 490 495
 Thr Thr Gly Gly Cys Ala Gly Ala Cys Ala Gly Gly Gly Thr Thr Cys
 500 505 510
 Thr Gly Gly Ala Thr Gly Thr Gly Gly Thr Gly Gly Ala Gly Ala Gly
 515 520 525
 Gly Ala Gly Cys Cys Thr Cys Ala Gly Cys Ala Ala Cys Thr Ala Cys
 530 535 540
 Cys Cys Cys Thr Thr Thr Gly Ala Cys Thr Thr Cys Cys Ala Gly Gly
 545 550 555 560
 Gly Thr Gly Cys Cys Ala Gly Gly Ala Thr Cys Ala Thr Thr Ala Cys
 565 570 575
 Thr Gly Gly Cys Cys Ala Ala Gly Ala Gly Gly Ala Ala Gly Gly Thr
 580 585 590
 Gly Cys Cys Thr Ala Thr Gly Gly Cys Thr Gly Gly Ala Thr Thr Ala
 595 600 605
 Cys Thr Ala Thr Cys Ala Ala Cys Thr Ala Thr Cys Thr Gly Cys Thr
 610 615 620
 Gly Gly Gly Cys Ala Ala Ala Thr Thr Cys Ala Gly Thr Cys Ala Gly
 625 630 635 640
 Ala Ala Ala Ala Cys Ala Ala Gly Gly Thr Gly Gly Thr Thr Cys Ala
 645 650 655
 Gly Cys Ala Thr Ala Gly Thr Cys Cys Cys Ala Thr Ala Thr Gly Ala
 660 665 670
 Ala Ala Cys Cys Ala Ala Thr Ala Ala Thr Cys Ala Gly Gly Ala Ala
 675 680 685
 Ala Cys Cys Thr Thr Thr Gly Gly Ala Gly Cys Thr Thr Thr Gly Gly
 690 695 700

Ala Cys Cys Thr Thr Gly Gly Gly Gly Gly Ala Gly Cys Cys Thr Cys
 705 710 715 720
 Thr Ala Cys Ala Cys Ala Ala Gly Thr Cys Ala Cys Thr Thr Thr Thr
 725 730 735
 Gly Thr Ala Cys Cys Cys Cys Ala Ala Ala Cys Cys Ala Gly Ala
 740 745 750
 Cys Thr Ala Thr Cys Gly Ala Gly Thr Cys Cys Cys Cys Ala Gly Ala
 755 760 765
 Thr Ala Ala Thr Gly Cys Thr Cys Thr Gly Cys Ala Ala Thr Thr Thr
 770 775 780
 Cys Gly Cys Cys Thr Cys Thr Ala Thr Gly Gly Cys Ala Ala Gly Gly
 785 790 795 800
 Ala Cys Thr Ala Cys Ala Ala Thr Gly Thr Cys Thr Ala Cys Ala Cys
 805 810 815
 Ala Cys Ala Thr Ala Gly Cys Thr Thr Cys Thr Thr Gly Thr Gly Cys
 820 825 830
 Thr Ala Thr Gly Gly Gly Ala Ala Gly Gly Ala Thr Cys Ala Gly Gly
 835 840 845
 Cys Ala Cys Thr Cys Thr Gly Gly Cys Ala Gly Ala Ala Ala Cys Thr
 850 855 860
 Gly Gly Cys Cys Ala Ala Gly Gly Ala Cys Ala Thr Thr Cys Ala Gly
 865 870 875 880
 Gly Thr Thr Gly Cys Ala Ala Gly Thr Ala Ala Thr Gly Ala Ala Ala
 885 890 895
 Thr Thr Cys Thr Cys Ala Gly Gly Gly Ala Cys Cys Cys Ala Thr Gly
 900 905 910
 Cys Thr Thr Thr Cys Ala Thr Cys Cys Thr Gly Gly Ala Thr Ala Thr
 915 920 925
 Ala Ala Gly Ala Ala Gly Gly Thr Ala Gly Thr Gly Ala Ala Cys Gly
 930 935 940
 Thr Ala Ala Gly Thr Gly Ala Cys Cys Thr Thr Thr Ala Cys Ala Ala
 945 950 955 960
 Gly Ala Cys Cys Cys Cys Cys Thr Gly Cys Ala Cys Cys Ala Ala Gly
 965 970 975
 Ala Gly Ala Thr Thr Thr Gly Ala Gly Ala Thr Gly Ala Cys Thr Cys
 980 985 990

Thr Thr Cys Cys Ala Thr Thr Cys Cys Ala Gly Cys Ala Gly Thr Thr
 995 1000 1005
 Thr Gly Ala Ala Ala Thr Cys Cys Ala Gly Gly Gly Thr Ala Thr Thr
 1010 1015 1020
 Gly Gly Ala Ala Ala Cys Thr Ala Thr Cys Ala Ala Cys Ala Ala Thr
 1025 1030 1035 1040
 Gly Cys Cys Ala Thr Cys Ala Ala Ala Gly Cys Ala Thr Cys Cys Thr
 1045 1050 1055
 Gly Gly Ala Gly Cys Thr Cys Thr Thr Cys Ala Ala Cys Ala Cys Cys
 1060 1065 1070
 Ala Gly Thr Thr Ala Cys Thr Gly Cys Cys Cys Thr Thr Ala Cys Thr
 1075 1080 1085
 Cys Cys Cys Ala Gly Thr Gly Thr Gly Cys Cys Thr Thr Cys Ala Ala
 1090 1095 1100
 Thr Gly Gly Gly Ala Thr Thr Thr Thr Cys Thr Thr Gly Cys Cys Ala
 1105 1110 1115 1120
 Cys Cys Ala Cys Thr Cys Cys Ala Gly Gly Gly Gly Ala Thr Thr
 1125 1130 1135
 Thr Thr Gly Gly Gly Gly Cys Ala Thr Thr Thr Thr Cys Ala Gly Cys
 1140 1145 1150
 Thr Thr Thr Thr Thr Ala Cys Thr Thr Thr Gly Thr Gly Ala Thr Gly
 1155 1160 1165
 Ala Ala Gly Thr Thr Thr Thr Thr Ala Ala Ala Cys Thr Thr Gly Ala
 1170 1175 1180
 Cys Ala Thr Cys Ala Gly Ala Gly Ala Ala Ala Gly Thr Cys Thr Cys
 1185 1190 1195 1200
 Thr Cys Ala Gly Gly Ala Ala Ala Ala Gly Gly Thr Gly Ala Cys Thr
 1205 1210 1215
 Gly Ala Gly Ala Thr Gly Ala Thr Gly Ala Ala Ala Ala Ala Gly Thr
 1220 1225 1230
 Thr Cys Thr Gly Thr Gly Cys Thr Cys Ala Gly Cys Cys Thr Thr Gly
 1235 1240 1245
 Gly Gly Ala Gly Gly Ala Gly Ala Thr Ala Ala Ala Ala Ala Cys Ala
 1250 1255 1260
 Thr Cys Thr Thr Ala Cys Gly Cys Thr Gly Gly Ala Gly Thr Ala Ala
 1265 1270 1275 1280

Ala Gly Gly Ala Gly Ala Ala Gly Thr Ala Cys Cys Thr Gly Ala Gly
 1285 1290 1295
 Thr Gly Ala Ala Thr Ala Cys Thr Gly Cys Thr Thr Thr Cys Thr
 1300 1305 1310
 Gly Gly Thr Ala Cys Cys Thr Ala Cys Ala Thr Thr Cys Thr Cys Thr
 1315 1320 1325
 Cys Cys Cys Thr Cys Cys Thr Thr Cys Thr Gly Cys Ala Ala Gly Gly
 1330 1335 1340
 Cys Thr Ala Thr Cys Ala Thr Thr Thr Cys Ala Cys Ala Gly Cys Thr
 1345 1350 1355 1360
 Gly Ala Thr Thr Cys Cys Thr Gly Gly Gly Ala Gly Cys Ala Cys Ala
 1365 1370 1375
 Thr Cys Cys Ala Thr Thr Thr Cys Ala Thr Thr Gly Gly Cys Ala Ala
 1380 1385 1390
 Gly Ala Thr Cys Cys Ala Gly Gly Gly Cys Ala Gly Cys Gly Ala Cys
 1395 1400 1405
 Gly Cys Cys Gly Gly Cys Thr Gly Gly Ala Cys Thr Thr Thr Gly Gly
 1410 1415 1420
 Gly Cys Thr Ala Cys Ala Thr Gly Cys Thr Gly Ala Ala Cys Cys Thr
 1425 1430 1435 1440
 Gly Ala Cys Cys Ala Ala Cys Ala Thr Gly Ala Thr Cys Cys Cys Ala
 1445 1450 1455
 Gly Cys Thr Gly Ala Gly Cys Ala Ala Cys Cys Ala Thr Thr Gly Thr
 1460 1465 1470
 Cys Cys Ala Cys Ala Cys Cys Thr Cys Thr Cys Thr Cys Cys Ala
 1475 1480 1485
 Cys Thr Cys Cys Ala Cys Cys Thr Ala Thr Gly Thr Cys Thr Thr Cys
 1490 1495 1500
 Cys Thr Cys Ala Thr Gly Gly Thr Thr Cys Thr Ala Thr Thr Cys Thr
 1505 1510 1515 1520
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 Ala Gly Thr Gly Gly Cys Cys Ala Thr Cys Ala Thr Ala Gly Gly Cys
 1540 1545 1550
 Thr Thr Gly Cys Thr Thr Ala Thr Cys Thr Thr Thr Cys Ala Cys Ala
 1555 1560 1565

Ala Gly Cys Cys Thr Thr Cys Ala Thr Ala Thr Thr Cys Thr Gly
 1570 1575 1580
 Gly Ala Ala Ala Gly Ala Thr Ala Thr Gly Gly Thr Ala Thr Ala Gly
 1585 1590 1595 1600
 Cys Ala Ala Ala Ala Gly Cys Ala Gly Cys Thr Gly Ala Ala Ala Thr
 1605 1610 1615
 Ala Thr Gly Cys Thr Gly Gly Cys Thr Gly Gly Ala Gly Thr Gly Ala
 1620 1625 1630
 Gly Gly Ala Ala Ala Ala Ala Thr Cys Gly Thr Cys Cys Ala Gly
 1635 1640 1645
 Gly Gly Ala Gly Cys Ala Thr Thr Thr Thr Cys Cys Thr Cys Cys Ala
 1650 1655 1660
 Thr Cys Gly Cys Ala Gly Thr Gly Thr Thr Cys Ala Ala Gly Gly Cys
 1665 1670 1675 1680
 Cys Ala Thr Cys Cys Thr Thr Cys Cys Cys Thr Gly Thr Cys Thr Gly
 1685 1690 1695
 Cys Cys Ala Gly Gly Gly Cys Cys Ala Gly Thr Cys Thr Thr Gly Ala
 1700 1705 1710
 Cys Gly Ala Gly Thr Gly Thr Gly Ala Ala Gly Cys Thr Thr Cys Cys
 1715 1720 1725
 Thr Thr Gly Gly Cys Thr Thr Thr Thr Ala Cys Thr Gly Ala Ala Gly
 1730 1735 1740
 Cys Cys Thr Thr Thr Cys Thr Thr Thr Thr Gly Gly Ala Gly Gly Thr
 1745 1750 1755 1760
 Ala Thr Thr Cys Ala Ala Thr Ala Thr Cys Cys Thr Thr Thr Gly Cys
 1765 1770 1775
 Cys Thr Cys Ala Ala Gly Gly Ala Cys Thr Thr Cys Gly Gly Cys Ala
 1780 1785 1790
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 1795 1800 1805
 Thr Gly Ala Gly Thr Thr Thr Thr Thr Cys
 1810 1815

<210> 3
 <211> 11
 <212> PRT
 <213> Bovine

<400> 3
Glu Thr Pro Val Tyr Leu Gly Ala Thr Ala Gly
1 5 10

<210> 4
<211> 5
<212> PRT
<213> Bovine

<400> 4
Leu Leu Arg Met Glu
1 5

<210> 5
<211> 13
<212> PRT
<213> Bovine

<220>
<221> UNSURE
<222> (8)
<223> Xaa, where Xaa = any amino acid

<400> 5
Ala Asp Lys Ile Leu Ala Asn Xaa Val Ala Ser Ser Ile
1 5 10

<210> 6
<211> 10
<212> PRT
<213> Bovine

<400> 6
Tyr Pro Phe Asp Phe Gln Gly Ala Arg Ile
1 5 10

<210> 7
<211> 19
<212> PRT
<213> Porcine

<400> 7
Lys Ser Asp Thr Gln Glu Thr Tyr Gly Ala Leu Asp Leu Gly Gly Ala
1 5 10 15

Ser Thr Gln

<210> 8

<211> 16

<212> PRT

<213> Human and bovine

<400> 8

Lys Ser Asp Thr Gln Glu Thr Tyr Gly Ala Leu Asp Leu Gly Gly Ala
1 5 10 15

α